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PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. I. NOVEMBER & DECEMBER, 1838. No. 5.

Stated Meeting, November 2.

Present, twenty-eight members.

Mr. DU PONCEAU, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

Nieuwe Verhandelingen der Eersteklasse van het Koninklijk-Nederlandsche Instituut te Amsterdam. Vols. VI. & VII. Amsterdam, 1837 & 1838.—*From the Institute.*

Tijdschrift voor Natuurlijke Geschiedenis en Physiologie. Uitgegeven door J. van der Hoeven, M. D. en W. H. de Vriese, M. D. Vol. IV. Leyden, 1837 & 1838.—*From the Minister of the Interior of the Netherlands.*

Flora Batava. Nos. 108 & 114. Amsterdam.—*From the same.*

The American Journal of Science and Arts. Conducted by Benjamin Silliman, M. D., aided by Benjamin Silliman, Jr., A. B. Vol. XXXV. No. 1. New Haven, 1838.—*From the Conductors.*

Annals of the Lyceum of Natural History of New York. Vol. IV. Nos. 1, 2, 3 & 4. New York, 1837.—*From the Lyceum.*

A View of the Commerce between the United States and Rio de Janeiro, Brazil. By John M. Baker, late U. S. Consul for Rio de Janeiro. Washington, 1838.—*From Mr. John Vaughan.*

Museum Ichthyologicum, sistens Piscium qui in Museo L. T. Gronovii adservantur, Descriptiones. Amsterdam, 1754.—*From the same.*

E OTIS KENDALL

Eulogy on Nathaniel Bowditch, LL. D. Delivered before the American Academy of Arts and Sciences, May 29, 1838. By John Pickering, Cor. Secretary of the Academy. Boston, 1838.—*From the Author.*

Nouveau Procédé pour la Conservation des Grains; par M. le général Demarçay.—*From M. Hersant, French Consul.*

A Bibliographical Account and Collation of la Description de l'Egypte, presented to the Library of the London Institution, by Sir Thomas Baring, Baronet, President. London, 1838.—*From Mr. William Vaughan.*

FOR THE CABINET.

A collection of shells from the Island of Malta; also four images cut from Malta stone, taken from "St. Paul's Cave," at Citta Vecchia.—*From William Winthrop Andrews, Esq., U. S. Consul at Malta.*

The Committee on the solar eclipse of the 18th of September, made a further Report in part, comprising the following observations:—

Nos. 26 and 27. Observations of Professors Alexander and Henry, at the house of the latter, (lat. 40° 20′ 50″, lon. 4*h* 58*m* 37.2*s* W. of Greenwich, being 0.1*s* in time W. of Nassau Hall), Princeton College, New Jersey; with a five feet Fraunhofer, yellow screen glass, power 60 for beginning and end, and 40 for the ring, and with a three and a half feet Dollond, dark red screen glass, power 80.

	h	*m*	*s*	
Beginning, - -	3	14	42.71	Henry.
Do. - -	3	14	43.31	Alexander.
Formation of ring, -	4	33	11.27	Both observers.
Rupture of ring, -	(not observed.)			
End, - - -	5	46	38.54	Henry.
Do. - - -	5	46	39.24	Alexander.
Mean duration of eclipse,	2	31	54.88	
Do. of ring, (not observed) less than tabular duration.				

About two minutes before the formation of the ring, Prof. Henry saw, in the Dollond telescope with a red screen glass, an arch of

faint light between the cusps, and shortly afterwards a brush of greater intensity, projecting from near the lower cusp. This phenomenon was not seen by Prof. Alexander in the Fraunhofer with green screen glass, till 61 seconds before the formation of the ring, and then only as a luminous spot. This difference could not have been the result of any oversight on the part of Prof. Alexander; as Prof. Henry, immediately on seeing it, called out to Prof. Alexander, and described its appearance. The optical capacity of the Fraunhofer is superior to that of the Dollond. Prof. Alexander is well known for his nice observations of the annular eclipse of the 13th February, 1831, and of the total eclipse of the 30th November, 1834. Its explanation must be sought for in the nature of the rays of which this arch and brush of light are composed; rays absorbed by the green screen glass, and transmitted by the red. The moon's limb became brightly illuminated at $4^h\ 32^m\ 53.28^s$. "An appearance, similar to a row of beads, was regarded as the formation of the ring." "The drops endured for a second or two." Expecting a longer duration of the ring, the attention of the observers was not directed to the sun's limb at the instant of the rupture. The light succeeding the rupture of the ring was visible in the Dollond telescope till $4^h\ 41^m\ 16.27^s$, (the minute uncertain, perhaps a minute earlier), having disappeared several minutes earlier in the Fraunhofer refractor.

No. 28. The beginning of the eclipse was observed by William Cranch Bond, at his private Observatory, with a two feet Gregorian, power 44; latitude 45° 19′ 15″, longitude $4^h\ 44^m\ 17.29^s$ west of Greenwich, (or 0.69^s in time west of Boston State House by Mr. Paine's trigonometrical survey) as follows:—

Beginning, $3^h\ 28^m\ 10.90^s$ mean time of place of observation.
End, lost by clouds.

No. 29. The beginning was observed at $3^h\ 28^m\ 11.6^s$ at the State House, Boston, by Mr. Borden, with a $3\frac{1}{2}$ feet refractor. Clouds prevented its observation at Cambridge.

The Committee also reported the following observations of R. T. Paine, Esq., on the occasion of his journey to Washington to observe the eclipse. These were made with his sextant, constructed by Troughton for the chronometrical survey of Massachusetts, and carefully corrected by that artist for all sensible error of eccentricity; and with three excellent chronometers used by Mr. Paine in the survey.

Latitude of the Capitol.

Sep. 17th, by 21 observed altitudes of both limbs				of the sun,	38° 53′ 23.39″
„	„	16	do.	β ceti,	22.75
„	„	22	do.	Polaris,	21.77
„	22d	12	do.	both limbs of the sun,	22.31
„	„	12	do.	Polaris,	22.70
„	„	7	do.	β ceti,	24.89
By mean of 56 altitudes of sun and southern stars,					23.16
Do.	of 34	do.		Polaris,	22.24
				Latitude of the Capitol,	38° 53′ 22.7″

The corrections of the chronometers were determined by Mr. Paine for Boston State House, from transit observations of Mr. Bond, at Dorchester; those for Philadelphia State House, by eastern and western altitudes of stars, observed at the High School Observatory, by Messrs. Paine, Riggs, Walker, and Kendall, with the Troughton's sextant, circle, a Pistor's sextant, and a sextant (maker's name unknown) reading to 10″. Those for Washington were made by Mr. Paine. The daily rates of the chronometers for Washington were on mean time,

		s
151	Barraud	— 14.27
682	do.	+ 1.67
1678	Arnold	+ 8.46.

With these rates, the condition of the chronometers at the beginning of the eclipse was as follows:—

151 Barraud.	682 Barraud.	1678 Arnold.				
m s	m s	m s				
+ 19 31.59	+ 25 11.27	+ 31 46.21	by	8 W.	alt's of sun,	Sep. 17.
31.18	11.52	46.43		9 E.	„ α Tauri,	„
30.96	11.61	46.34		4 E.	„ α Orionis,	„
31.70	11.20	46.12		12 E.	„ sun,	„
32.65	12.13	47.14		8 E.	„ α Androm,	18.
31.70	11.38	46.34		12 E.	„ sun,	„
+ 19 31.68	+ 25 11.48	+ 31 46.41	Mean of 53 altitudes.			

The longitude of the State House, Boston, is stated by Mr. Paine

to be $4^h\ 44^m\ 16.6^s$, as the result of all the observations yet made. It is the same as that which Dr. Bowditch had deduced from those of 1811 and previous. The longitude of the State House, Philadelphia, obtained by Mr. Walker from the principal observations made at Philadelphia to this time, is $5^h\ 0^m\ 39.2^s$. With these longitudes as standards, Mr. Paine's chronometric observations give,

			m	s	
Boston—Philadelphia by	151	Barraud	16	24.27	going from Boston to Phila.
	682	do.		22.30	do.
	1678	Arnold		24.03	do.
	151	Barraud		23.33	returning from Phila. to Boston.
	682	do.		23.60	do.
	1678	Arnold		23.76	do.
Philadelphia—Capitol by	151, 682, 1678	Mean	7	26.43	going from Phila. to Capitol.
	151, 682, 1678	Mean	7	26.50	returning from Capitol to Phila.

	h	m	s		m	s	h	m	s
Hence, longitude of Capitol	$=4$	44	16.6	+	23	50.01	$=5$	8	6.61
	$=5$	0	39.2	+	7	26.46	$=5$	8	5.66
							Mean $=5$	8	6.14

Mr. Walker, in a paper read before the Society, March 2, 1838, from a discussion of all the observations then made at Washington, finds the longitude of the Capitol $5^h\ 8^m\ 7^s$, a value which is probably not far from the truth.

Thus we have an additional proof, if any were needed, of the error of 25 seconds in time of Lambert's longitude of the Capitol, reported to Congress and adopted by that body.

The coincidence between the interval from Boston to Philadelphia, viz.

	m	s
By celestial phenomena,	16	22.60
By chronometers,	16	23.55

shows that the error of either is reduced within narrow limits.

The Mansion House, Northampton, Mass., lat. 42° 19′ 4.6″ by 327 altitudes of northern and southern stars, has the following longitude:—

	m	s	
Boston—Northampton,	6	17.72	by 74 chronometers.
Do.	6	17.89	by immersion τ Sagittarii.
Northampton—Philad.	10	4.06	by do.

This immersion of τ Sagittarii was observed, Aug. 22d, 1836, as follows:—

	h	m	s	
By R. T. Paine,	at 10	14	57.46	at Mansion House, Northampton.
By W. C. Bond,	at 10	23	20.90	at his Observatory.
By S. C. Walker,	at 10	1	7.30	at N. 4.4″, W. 1.06*s* of S. House, Ph.

Again, for the longitude of Brown University, Providence, Mr. Paine finds,

	m	s	
Boston—Providence,	1	22.64	by 40 chronometers.
Do.	1	22.29	by eclipse of May 15th, 1836.

Mr. Paine's observations of the eclipse of Sep. 18th have already been reported. Those for latitude and regulation of chronometers have been stated more at length, in order to furnish examples of the method pursued by that gentleman in the chronometric survey of Massachusetts, the only work of the kind of much extent hitherto performed in this country. Some idea of the labours of Mr. Paine may be formed from the fact, that, during its progress, he has been under the necessity of making and reducing more than 100,000 observations of altitudes of the sun and stars, without any assistance.

It is proper to add that Mr. Gilliss' observations, already reported, appear to require a subtractive correction of 1.95*s*. Thus Mr. Paine's observations give,

	h	m		m	s
Sep. 18th,	21	25,	Barraud 151 fast by its own rate +	19	20.80
			by comparison with 682 Barraud,		20.91
			1678 Arnold,		20.89
			by mean of three chronometers,	19	20.87
			by Mr. Gilliss' transit observations,	19	22.82
			Discrepancy,		1.95

Professor Henry read a paper entitled "Contributions to Electricity and Magnetism, No. 3. On the Phenomena of Electro-dynamic Induction." Referred to Prof. A. D. Bache, Dr. Patterson, and Dr. Hare.

The primary object of the investigation undertaken by the author, was the discovery of induced currents from ordinary electricity, similar to those produced by galvanism. Preparatory to this, a new investigation was instituted of the phenomena of galvanic induction, and the result of this forms, perhaps, the most important part of the communication.

The first section of the paper refers to the conditions which influence the induction of a current on itself, as in the case of a long wire and a spiral conductor. These are shown to depend on the intensity and quantity of the battery current, and on the length, thickness, and form of the conductor.

The next section examines the conditions necessary to the production of powerful secondary currents, and also the changes which take place in the same, when the form of the battery, and the size and form of the conductor are varied. The important fact is shown, that not only a current of intensity can be induced by one of quantity, but also the converse, that a current of quantity can be produced by one of intensity.

The third section relates to the effect of interposing different substances between the conductor which transmits the current from the battery, and that which is arranged to receive the induced current. All good conducting substances are found to screen the inducing action, and this screening effect is shown, by the detail of a variety of experiments, to be the result of the neutralizing action of a current, induced in the interposed body. This neutralizing current is separately examined, and its direction found to be the same as that of the battery current. The question is then raised, how two currents in the same direction can counteract each other? An answer to this question is given in a subsequent part of the paper.

The fourth section relates to the discovery of induced currents of the third, fourth, and fifth orders;—that is, to the fact that the second current is found capable of inducing a third current, and this latter again another, and so on. The properties of these new currents are next examined, and the screening influence is found to take place between them; quantity is induced from intensity, and conversely; magnetism is developed in soft iron; decomposition is effected, and intense shocks are obtained, even from the current of the fourth order. A remarkable and important fact is stated in reference to the direction of these currents. If the direction of the battery current and that of the second be called *plus*, then the direction of the third current will be *minus*, of the fourth current *plus*, of the fifth *minus*, and so on. The application of the fact of these alternations is made to the explanation of the phenomenon of screening before mentioned, and also to the improvement of the magneto-electrical machine.

The last part of the paper relates to the discovery of secondary currents, and of currents of the several orders, in the discharge of

ordinary electricity. Shocks are obtained from these; the screening influence of good conductors is shown to take place; magnetism is developed; and the alternations in the direction are found to exist as in the currents from galvanic induction. Some remarkable results are given in reference to the great distance at which the induction takes place. Experiments are detailed in which needles were made magnetic, when the conductors were removed to the distance of twelve feet from each other.

Prof. Henry made a verbal communication, during the course of which he illustrated, experimentally, the phenomena developed in his paper.

Stated Meeting, November 16.

Present, twenty-four members.

Mr. Du Ponceau, President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

The Good Fellow, by Paul de Kock. Translated from the French by a Philadelphian. Two Volumes. Philadelphia, 1837.—*From Daniel J. Desmond, Esq.*

Allgemeiner Hand-Atlas der Ganzen Erde. Weimar, 1811.—*From the same.*

Kongl. Vetenskaps-Academiens Handlingar, för Aor 1836. Stockholm, 1838.—*From the Academy.*

Aorsberättelse om Framstegen i Fysik och Kemi afgifven den 31 Mars 1836; af Jac. Berzelius. Stockholm, 1836.—*From the Royal Swedish Academy.*

Aorsberättelse om Technologiens Framsteg afgifven den 31 Mars 1836; af G. E. Pasch. Stockholm, 1836.—*From the same.*

Aorsberättelse i Astronomien af S. A. Cronstrand. Den 31 Mart. 1836. Stockholm, 1836.—*From the same.*

Aorsberättelser om Nyare Zoologiska Arbeten och Upptäckter, afgifne den 31 Mars 1835 och 1836, af B. Fr. Fries. Stockholm, 1837. —*From the same.*

Aorsberättelse om Botaniska Arbeten och Upptäckter för Aor 1835. Afgifven den 31 Mars 1836. Af Joh. Em. Wikström. Stockholm, 1837.—*From the same.*

Tal om Hydraulikens närvarande tillstand m. m. Af P. Lagerhjelm. Stockholm, 1837.—*From the same.*

Aminnelse-Tal öfver Kongl. Vetenskaps-Academiens Framlidne Ledamot Friherre Lars A. Mannerheim, af A. G. Mörner. Stockholm, 1837.—*From the same.*

Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin. Aus dem Jahre, 1836. Berlin, 1838.—*From the Academy.*

Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königl. Preuss. Akademie der Wissenschaften zu Berlin. For July, Aug. Sept. Oct. Nov. & Dec. 1837; and Jan. Feb. March, April, May, & June, 1838. Berlin, 1837-38.—*From the same.*

Essai sur le Madar, (Calotropis Madarii Indico-Orientalis) contenant l'Histoire naturelle de cette Plante, ses propriétés physiques, chimiques, et médicinales. Par J. N. Casanova, C. M. D. Traduit de l'Anglais par L. A. Richy. Calcutta, 1833.—*From the Author.*

General Observations respecting Cholera Morbus. By J. N. Casanova, C. M. D. Philadelphia, 1834. *From the Author.*

A Lecture on the Social and Moral Influences of the American Revolution. By Job R. Tyson. Philadelphia, 1838.—*From the Author.*

The American Journal of the Medical Sciences. Edited by Isaac Hays, M. D. No. XLV, for November. Philadelphia, 1838.—*From the Editor.*

Transactions of the Agricultural and Horticultural Society of India. Vol. V. Serampore, 1838. *From the Society.*

Agricultural Society of India. Proceedings. Four numbers. From Jan. to April. Calcutta, 1838.—*From the same.*

FOR THE CABINET.

Three specimens of quicksilver ores, eight of silver ores, and fourteen of copper ores, from different localities in Chili; six specimens of various ores and minerals, also from Chili; eight fossils from the Cordillera; an ostrich egg from the Pampas of Buenos Ayres.—*From Dr. J. N. Casanova.*

The Committee on the solar eclipse of the 18th of September, made a further Report in part, comprising the following observations:—

No. 30. Observation of A. Holcomb, at his Observatory, Southwick, Mass., with a seven feet Herschelian of his own construction, power 225, with red screen glass. Southwick is in latitude 42° 0′ 41″ north; longitude 4*h* 51*m* 12*s*, by Mr. Holcomb's triangulation with Springfield Court House, one of the points determined by Mr. Paine. Mr. S. C. Walker finds, from Mr. Holcomb's observation of the solar eclipse of 1836, for this longitude 4*h* 51*m* 13.2*s*. Mean value 4*h* 51*m* 12.6*s*.

	h	*m*	*s*		
Beginning,	3	20	19	Mean time.	Observation satisfactory.
End,	5	50	27	Do.	Doubtful one second. Sun's limb
Duration,	2	30	8		tremulous, and near horizon.

No. 31. Observation of Prof. Albert Hopkins, at the Observatory of Williamstown College, Mass. Latitude, 42° 42′ 44″, longitude 4*h* 52*m* 52*s*. Astronomical clock regulated by a four feet transit instrument.

	h	*m*	*s*		
Beginning,	3	17	19.9	Mean time.	Good observation.
End,	(not observed)				Sun too near the horizon.

The Committee on Dr. Hare's paper on the Tornado which passed over a suburb of Providence, R. I., in August last, reported in favour of publication, and the Report was adopted.

The phenomena and facts, stated in this paper, are quite consistent with those mentioned upon the authority of Prof. Bache, Mr. Espy, and other observers, relative to the Tornado which took place in New Jersey, at or near New Brunswick, in June, 1835, and of which an account will be found in the last volume of the Transactions of the Society. This paper embraced a letter from Zachariah Allen, Esq., a highly respectable gentleman of Providence, who was an eye-witness of the Tornado, having been quite as near to it as was consistent with safety. One of the facts noticed by Mr. Allen, Dr. Hare considers as tending to justify his opinion, that the exciting cause of these meteors is electrical attraction. Mr. Allen alleged that, as soon as the Tornado came into contact with the surface of the river, the water rose in a foam; that, under these circumstances, two flashes of lightning passed between the water and the overhanging clouds;

and that, after each flash, there was a perceptible subsidence of the foam. This result is precisely what Dr. Hare conceives would ensue, if the foam arose from an attraction between the water and the stratum of air above, caused by opposite states of electrical excitement. In such case, the passage of sparks always necessarily tends to restore the equilibrium between the electrified masses, and consequently to lessen their reciprocal attraction.

Dr. Hare made a verbal communication in relation to his compound blowpipe. He stated that, having, in a letter to the chemical section of the British Association, mentioned the fusion of twenty-five ounces of platinum, of which he had already informed the Society, a Mr. Maugham, who is employed at the Adelaide Gallery in London to exhibit the hydro-oxygen microscope, had asserted that the fusion in question had been accomplished by a blowpipe of a kind which he had contrived, and of which one had been bought by Dr. Hare when in London.

Dr. Hare said he would not have considered this ridiculous and groundless allegation worthy of notice, had it not been made before the chemical section of the British Association, and had not the individual, by whom it was made, been honoured by a British society with a premium for the instrument which he miscalled *his* blowpipe. This blowpipe differed immaterially from one of which he, Dr. Hare, had published an engraving and description in Silliman's American Journal of Science for 1820, (Vol. II., page 298, fig. 3;) being a modification of his blowpipe described in Vol. XIV. of Tilloch's Philosophical Magazine for 1802.

The only difference between the instruments described and represented in those publications, and that employed by Maugham, was that the latter formed near the apex an acute angle, so as to be convenient for directing the flame upon a cylinder of lime for producing the lime-light.

With a view to show this method of illumination, agreeably to the process in which a revolving cylinder of lime is employed, Dr. Hare stated that he had purchased one of the crooked blowpipes alluded to; *but he had never used it for any purpose*, having found his own blowpipe abovementioned preferable, when the jet was directed obliquely upwards.

Unless cured of the crookedness, which was its only essential distinguishing attribute, the blowpipe used by Maugham was evidently unfit for the fusion of any metal. Dr. Hare stated that he would not undertake the fusion with it of an ounce of platinum; and concluded by saying, that, whenever the process by which he had lately extended the power of his blowpipe should be published, it would be seen, that, however it might differ from those which he had previously contrived, it differed still more from that which Maugham had appropriated to himself.

Prof. Bache informed the Society, that, in conjunction with Prof. Rogers and Mr. Saxton on the nights of the 12th and 13th of November, and with Prof. Rogers and Mr. Walker on the 13th and 14th, he had observed the number of meteors or shooting stars. The first night was clear for only about an hour, viz., between three-quarters past one and two, when but one meteor was seen. The second was clear until half past two; but not even an ordinary average number of meteors was seen.

On the authority of a letter from Mr. Levett Harris, Dr. Bache reported the decease of Mr. F. H. Le Comte, of Paris, a member of the Society.

Stated Meeting, December 7.

Present, twenty-seven members.

Dr. PATTERSON, Vice President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

Mémoires Couronnés par l'Académie Royale des Sciences et Belles-Lettres de Bruxelles. Vol. XII. Brussels, 1837.—*From the Academy.*

Bulletin de l'Académie Royale de Bruxelles. Nos. 10, 11, & 12. Brussels, 1837.—*From the same.*

Annuaire de l'Académie Royale des Sciences et Belles-Lettres de Bruxelles. Quatrième Année. Brussels, 1838.—*From the same.*

Notes sur la Structure des Hydatides et de l'Epiderme dans quelques Animaux; par M. Gluge. Brussels, 1838.—*From the Author.*

Note sur la Terminaison des Nerfs et sur les Canaux Nerveux dans les Moignons des Amputés; par M. Gluge. Brussels, 1838.—*From the Author.*

Annuaire de l'Observatoire de Bruxelles, pour l'An 1838, par le Directeur A. Quetelet. Brussels, 1838.—*From the Director.*

Observations Horaires faites au dernier Solstice d'Hiver (1837), à Bruxelles, Louvain, Alost et Londres, &c. Brussels, 1838.—*From A. Quetelet.*

Bulletin de la Société de Géographie. Deuxième Série. Vol. IX. Paris, 1838.—*From the Society.*

Annales des Mines. Troisième Série. Vol. XIII. Parts 1 & 2 of 1838. Paris, 1838.—*From the Engineers of Mines.*

The Journal of the Royal Asiatic Society of Great Britain and Ireland. No. 9. London, 1838.—*From the Society.*

Catalogue of the Chinese Library of the Royal Asiatic Society. By the Rev. S. Kidd. London, 1838.—*From the same.*

Journal of the Asiatic Society of Bengal. Nos. 73, 74, 75, & 76. Calcutta, 1838.—*From the Society.*

An Account of the Experiments made in the French Navy for the Trial of Bomb Cannon, etc. By H. J. Paixhans, Lieut. Col. of Artillery. Translated from the French, by John A. Dahlgren, Lieut. U. S. Navy. Philadelphia, 1838.—*From the Translator.*

American Quarterly Register. Conducted by B. B. Edwards and W. Cogswell. Vol. XI. No. 2. For November. Boston, 1838. —*From Mr. W. Cogswell.*

Dr. Hare presented several papers on subjects relating to Chemistry and Galvanism. Referred to Dr. Bache, Professor Bache, and Mr. Lukens.

Mr. Raguet read, with concluding remarks by himself, an Obituary Notice of the late Chevalier Lorich, Chargé d'Affaires of Sweden to the United States, which had been communicated to Mr. Vaughan by the brother of the deceased.

Mr. C. J. Ingersoll read an Obituary Notice of the late president Madison.

Mr. Raguet reported the death of Don José Bonifacio de

Andrada e Silva, of Brazil, and Dr. Bache, the decease of Dr. Alexander Pearson, formerly of Canton, both members of the Society.

Stated Meeting, December 21.

Present, twenty-eight members.

Dr. PATTERSON, Vice President, in the Chair.

The following donations were received:—

FOR THE LIBRARY.

Malay Bible. Serampore, 1821.—*From Mr. L. B. Stone.*

Part of a Malay MS., entitled "History of the Prophets."—*From the same.*

A MS. copy, in Malay, of the Credentials, called the "*Tromba Menangcarbowe*," carried by the Prince Raja Laboo, last deputed by the States of Sumatra to the Court of the Sultan on the Peninsula.—*From the same.*

Gospel of St. John, in Malay. Press of the American Missionaries. Singapore, 1837.—*From the same.*

The Gospels and Acts, in Malay. Revised Edition. Printed at the Mission Press, for the British and Foreign Bible Society. Singapore, 1831.—*From the same.*

Story of Abdullah and Sabat, in Malay. Singapore, 1837.—*From the same.*

Romans. Chapters 1 to 16, in Tamul.—*From the same.*

Gospel of St. John, in Hindustani.—*From the same.*

Mr. Bruckner's Version of St. John, in Javanese.—*From the same.*

Acts of the Apostles, in Arabic.—*From the same.*

Acts of the Apostles, in Hinduwee.—*From the same.*

Proverbs, in Oordoo.—*From the same.*

Book of Genesis, in Bengalee. Calcutta, 1833.—*From the same.*

Three Missionary Tracts in Chinese.—*From the same.*

Chinese Almanac.—*From the same.*

Chinese Testament.—*From the same.*

The Gospels and Epistles of St. John, in Japanese.—*From the same.*

Gospel of St. John, in Siamese.—*From the same.*

A Tract in Bugis, a language of Celebes.—*From the same.*

Annals and Memoirs of the Royal Society of Northern Antiquaries. First Series, 1836–37. Copenhagen, 1837.—*From the Society.*

Mémoire sur la Découverte de l'Amérique au Dixième Siècle. Par C. C. Rafn. Traduit par Xavier Marmier. Paris, 1838.—*From the Author.*

Journal of the Select Council of Philadelphia. 1837–8. Philadelphia, 1838.—*From Mr. J. P. Wetherill.*

Report of the Committee on Prison Discipline, to the Governor General of India in Council, dated the Eighth of January, 1838. Calcutta, 1838.—*From Mr. William Adam.*

Second Report on the State of Education in Bengal. District of Rajshahi. Calcutta, 1836.—*From the same.*

Third Report on the State of Education in Bengal, &c. By William Adam. Calcutta, 1838.—*From the Author.*

The Magazine of Natural History. New Series. Conducted by Edward Charlesworth, F. G. S., &c. No. XXI. For September. London, 1838.—*From the Conductor.*

Caspari Frederici Wegener, D. de Aula Atalica Literarum Artiumque Fautrice Libri Sex. Volumen I. Copenhagen, 1836.—*From the Author.*

The Elements of Arithmology; being a Treatise on Arithmetic. By Charles Nagy. (In Hungarian.) Bécs, 1835.—*From the Author.*

The Elements of Arithmography; being a Treatise on Algebra. By Charles Nagy. (In Hungarian.) Bécs, 1837.—*From the Author.*

A Treatise on Arithmetic. (In Hungarian.) Bécs, 1837.—*From Mr. Charles Nagy.*

A Treatise on Geometry. (In Hungarian.) Bécs, 1838. *From the same.*

Bibliotheca Numismatica. Collecta et Indice Rerum Instructa a Joh. Christ. Hirsch. Nuremberg, 1760.—*From Mr. John Vaughan.*

Storia Naturale e Generale Dell'Etna del Canonico Giuseppe Recupero. Two Volumes. Catania, 1815.—*From the same.*

The American Medical Library and Intelligencer. By Robley Dunglison, M. D. Vol. II. Nos. 15 to 18. (Presented at this and preceding meetings.) Philadelphia, 1838.—*From the Editor.*

FOR THE CABINET.

A Specimen of pine-apple hemp, made from the stalk of the pine-apple.—*From Mr. L. B. Stone.*

A brush from Japan, made of the fibres of the cocoa-nut.—*From the same.*

The Committee on the solar eclipse of the 18th of September, made a further Report in part, comprising the following observations, received through the attentions of their correspondent, Prof. S. Alexander, of Princeton College, New Jersey:—

No. 32, by Prof. Augustus A. Smith, of the Wesleyan University, Middletown, Con. Latitude 41° 33′ 8″; longitude, as deduced by himself from this observation, by the method of Woolhouse, in the Nautical Almanac for 1837, 4*h* 50*m* 2*s*.

	h	*m*	*s*	
Beginning, - -	3	22	0.81	Mean time.
End, - - -	5	52	1.46	Mean time.

His telescope was a Herschelian, by Holcomb, seven feet in length, six inches in aperture, with a deep red screen glass, power 150. "There was nothing unusual in the appearance, except, perhaps, about the time of greatest obscuration. At first were seen two or three brushes or pencils of light, streaming out from that border of the moon, which was not projected on the sun's disc, about equidistant from each other, and from the higher cusp of the sun. These soon disappeared, and were succeeded by a faint diffuse light, bordering two-thirds of the lower part of the sun's limb. The duration of this appearance was not noted."

Prof. Smith also noticed an indentation in the sun's limb, which he attributes to the protrusion of a lunar mountain, before any other portion of the moon was visible on the sun's disc. The Committee are of opinion that this appearance should be referred to that class of phenomena which usually precede and follow a central eclipse, and which are to be ascribed to some optical cause rather than to the protrusion of lunar mountains.

No. 33, by Mr. I. N. Z. Blaney, at New Castle, Del., latitude 39° 40′, longitude 5*h* 2*m* 8*s*, W.; observation of the duration of the ring with a spy-glass, with smoked glass screen.

	m	*s*
From the appearance of the drops to the rupture of the ring,	4	47
From the perfect formation of the ring to the perfect rupture,	4	45

Prof. Alexander remarks that the luminous arch round the moon's

dark limb, and the brush of light were only partially visible in his 4 feet Fraunhofer, with a yellow screen glass, having a slight tint of green. He saw them distinctly in the 3½ feet Dollond, with a red screen glass, used by Prof. Henry, for some four minutes after the rupture of the ring, though none was visible in the Fraunhofer telescope; at least none is recollected to have been seen, though he examined the sun in the direction in which the ring broke. The testimony of so experienced an observer, who, in examining this arch and brush of light, used, interchangeably, the yellow and red screen glasses, in favour of their far greater visibility through the red screen glass, appears to be conclusive on the subject. This remarkable circumstance, not hitherto noticed in European observations, and first suggested by Robert Treat Paine, Esq., from his observations at Washington, appears to be now confirmed. It is one of great importance; as it seems to furnish evidence of the existence of a lunar atmosphere, through which, as through our own, the red rays have the greatest penetrative power. It also leads to new views concerning the cause of the remarkable appearances of the beads of light, and the dark lines frequently noticed; since it shows that their appearance may be completely modified by a change in the colour, and, consequently, in the absorbing power of the screen glass through which they are observed.

The fact, noticed by most of the observers, that before the formation and after the breaking of the ring, the edge of the moon *off* the sun was distinctly visible, and illuminated for some distance within the moon's surface, is just such as would be presented by a *twilight* caused by a lunar atmosphere; nor does there seem to be any other plausible explanation of this phenomenon.

The Committee on Prof. Henry's paper, entitled "Contributions to Electricity and Magnetism, No. 3. On Electro-dynamic Induction," reported in favour of publication, and the Report was adopted.

The Committee on Dr. Hare's papers, entitled, 1. "Rotary Multiplier or Galvano-motive needle;" 2. "Apparatus for showing on a large scale the Decomposition and Recomposition of Water by Galvanism;" 3. "Improved Process for Potassium," reported in favour of publication, and the Report was adopted.

Mr. Lea submitted the following description of a new shell, recently taken in the vicinity of Cincinnati by Mr. T. G. Lea.

MELANIA CINCINNATIENSIS.

"Testâ valde depressâ, inferné compressâ, fuscâ, trifasciatâ, bicarinatâ, apice acuminatâ; anfractibus quaternis; aperturâ subrotundâ."

This is a very minute species, and very remarkable for its roof-shaped spire, and two carinæ which are coloured.

On motion of Dr. Patterson, the Committee appointed on the late eclipse, were instructed to make and collect observations in relation to the occultation of stars in the constellation of the Pleiades, which will occur on the 27th instant.